

# **EXHIBIT 2**

ORIGINAL

COLUMBIA UNIVERSITY

License Agreement

relating to

U.S. Patent No. 4,399,216 et al.

THIS AGREEMENT, dated as of June 1, 1989, between THE TRUSTEES OF COLUMBIA UNIVERSITY IN THE CITY OF NEW YORK, a New York corporation ("Columbia"), and AMGEN, INC., a California corporation ("Licensee"),

W I T N E S S E T H:

WHEREAS, research at Columbia concerning the introduction of DNA into eucaryotic cells has resulted in certain useful discoveries that are disclosed and claimed in U.S. Patent No. 4,399,216 and other patents and patent applications owned by Columbia,

WHEREAS, Columbia wishes to license its patent rights in these discoveries to Licensee on a non-exclusive basis, and

WHEREAS, Licensee wishes to become licensed under these patent rights;

NOW, THEREFORE, in consideration of the premises and the mutual agreements herein contained, the parties hereby agree as follows:

1. Definitions.

(a) "Affiliate" means any corporation or other business entity that directly or indirectly controls, is controlled by, or is under common control with, Licensee. Control means direct or indirect ownership of, or other beneficial interest in, 50 per cent or more of the voting stock, other voting interest or income of a corporation or other business entity.

(b) "Licensed Patent Rights" means U.S. Patent No. 4,399,216, issued August 16, 1983; U.S. Patent No. 4,634,665, issued January 6, 1987; pending U.S. patent application Serial No. 346,089, filed May 2, 1989, a continuation application of U.S. Serial No. 915,273, filed October 3, 1986, now abandoned, which was a divisional application of U.S. Serial 522,408, filed August 11, 1983, now U.S. Patent No. 4,634,665, issued January 6, 1987; which in turn was a divisional application of U.S. Serial No. 124,513, filed February 25, 1980, now U.S. Patent No. 4,399,216, issued August 16, 1983; pending U.S. patent application Serial No. 249,454, filed September 26, 1988, a continuation application of U.S. Serial No. 103,807, filed October 1, 1987, now abandoned, which was a continuation application of U.S. Serial No. 683,251, filed December 17, 1984, now abandoned, which in turn was a

continuation application of U.S. Serial No. 358,206, filed March 15, 1982, now abandoned; all corresponding foreign patent applications including European Patent No. 045,809 and all national patents based thereon; any and all divisions, continuations and continuations-in-part based on any of the foregoing; any and all patents issued therefrom and any and all reissues or extensions thereof.

(c)(i) "Licensed Products" means products, the manufacture, use or sale of which is covered by a claim of Licensed Patent Rights which have neither expired nor been held invalid by a court of competent jurisdiction from which no appeal has or may be taken.

(ii) "End Products" means Licensed Products sold in form for use by an end user and not intended for, or not intended for use in, further chemical transformation, genetic manipulation, processing, formulation, compounding or packaging.

(iii) "Bulk Products" means Licensed Products other than End Products.

(iv) "Basic Genetic Products" means Bulk Products that are sold for use primarily for further genetic manipulation and services sold to another which involve the use of Licensed Patent Rights.

(v) "Process Improvements" means the savings achieved in the cost of manufacturing a Licensed Product relative to the previous cost of manufacturing essentially the same product by a process not covered by a claim of Licensed Patent Rights; cost of manufacturing shall be determined in accordance with generally accepted accounting principles.

(vi) End user for purposes of this paragraph (c) means a person or entity whose use of a product results in its destruction, loss of activity or loss of value.

(d) "Net Sales" means the total invoice or contract price charged by Licensee and its Affiliates to third parties for the sale of Licensed Products, less returns and customary trade discounts actually taken, outbound freight, value added, sales or use taxes and customs duties. If an End Product is sold in combination with another active component or components, Net Sales for purposes of determining royalties on the combination shall be calculated by multiplying Net Sales of the combination by the fraction  $A/(A+B)$ , where A is the total invoice price of the End Product if sold separately and B is the total invoice price of any other active component or components in the combination if sold separately. If the End Product and the other active component or components in the combination are not sold separately, Net Sales for purposes of determining royalties on the combination shall be

calculated by multiplying Net Sales of the combination by the fraction  $C/(C+D)$ , where C is the total direct cost of manufacturing the End Product and D is the total direct cost of manufacturing the other active component or components in the combination. Cost of manufacturing for the purposes of this paragraph (d) shall be determined in accordance with generally accepted accounting principles.

## 2. License Grant.

(a) Columbia hereby grants to Licensee and its Affiliates, subject to the terms and conditions of this Agreement, a non-exclusive, non-transferable license, under Licensed Patent Rights, without the right to grant sublicenses, to make, have made, use and sell Licensed Products.

(b) All rights granted by Columbia under this Agreement are subject to any rights required to be granted to the Government of the United States of America, including without limitation any rights reserved or obligations imposed by the Government pursuant to 35 U.S.C. §200-211, regulations thereunder and the determination letter to Columbia from the Department of Health and Human Services dated February 24, 1981, a copy of which is attached hereto as Appendix A. Licensee will provide all information and assistance necessary to enable Columbia to comply with its obligations to the Government in connection with the subject matter of this Agreement.

## 3. Fees and Royalties.

(a) Upon the signing of this Agreement, Licensee shall pay Columbia a non-refundable fee of \$180,000.

(b) On the first day of January of each calendar year following 1990, Licensee shall pay Columbia a non-refundable annual fee of \$30,000. In each year, beginning in 1991, in which Licensee owes royalty payments to Columbia, Licensee may credit that year's annual fee against royalty payments due.

(c) All sales by Licensee of Licensed Products, except sales to the United States Government, shall be subject to royalties as provided in Sections 3(d) through 3(g).

(d) Licensee shall pay Columbia a royalty equal to 1.5% of Net Sales of End Products made or sold in a country where Licensed Patent Rights exist.

(e) Licensee shall pay Columbia a royalty equal to 3.0% of Net Sales of Bulk Products made or sold in a country where Licensed Patent Rights exist.

(f) Licensee shall pay Columbia a royalty equal to 12.0% of Net Sales of Basic Genetic Products made or sold in a country where Licensed Patent Rights exist.

(g) Licensee shall pay Columbia a royalty equal to 15.0% of the cost savings achieved each calendar quarter by Process Improvements in countries where Licensed Patent Rights exist.

(h) If Licensee owes royalties under more than one of Sections 3(d), 3 (e), 3 (f) and 3 (g) based on Net Sales of, or Process Improvements with respect to, the same Licensed Product, Licensee shall pay only the highest royalty due under any one paragraph.

(i) If the manufacture, use or sale by Licensee of a Licensed Product in any country where Licensed Patent Rights exist would infringe a patent in that country, which patent is owned by a third party, Licensee shall be entitled to deduct from the royalties due from Licensee to Columbia based upon sales of such Licensed Products in such country certain royalties paid by Licensee to such third party for a license under such patent. Specifically, Licensee may deduct from the royalties due from Licensee to Columbia based upon sales of such Licensed Product in such country up to one-third of the royalties paid by Licensee to such third party based upon such sales, provided such deductions shall not exceed one-third of the amount of royalties due from Licensee to Columbia on such sales.

(j) If Columbia, under substantially identical conditions, grants to a third party a license under Licensed Patent Rights, having royalty rates more favorable to such third party than those set forth herein, Columbia will give Licensee the benefit of such rates.

#### **4. Reports and Payments.**

(a) Within 90 days after the close of each calendar quarter during the term of this Agreement, including the calendar quarter following termination of this Agreement, Licensee shall deliver a report certified by an officer of Licensee to Columbia, in form acceptable to Columbia, of the amount of Net Sales of Licensed Products sold by Licensee and its Affiliates, the amount of any Process Improvements and the amount of royalties due to Columbia under Section 3 of this Agreement. If a payment is due, Licensee shall remit such payment with the report.

(b) Licensee specifically acknowledges and agrees that it shall pay Columbia royalties on all of its sale of erythropoietin since June 1, 1989. For all sales made between June 1, 1989 and December 31, 1989, Licensee shall pay Columbia such royalties not later than March 31, 1990. Thereafter, the provisions of preceding Section 4(a) concerning the timing of report and payments shall apply.

(c) Licensee shall make payments in the United States in United States Dollars. All royalties due on Net Sales made in currency other than United States Dollars shall be converted to United States Dollars on the basis of the commercial rate of exchange in effect for such transfers at Chemical Bank in New York, New York, on the last business day of the period for which such royalties were due. If transfer restrictions exist in any country which prevent making payments in the United States, Licensee shall make all reasonable efforts to procure whatever licenses or permits are required to waive such restrictions or otherwise facilitate the making of such payments. If Licensee's efforts fail to permit making payments in the United States, Licensee may make such payments in local currency in the country where such restrictions exist by depositing the payments in a local bank or other depository designated by Columbia. Licensee may deduct or withhold from such payments and pay to the proper taxing authority for Columbia's account any taxes or fees required by law or regulation to be deducted or withheld from such payments. Licensee shall send to Columbia evidence of such payments.

(d) Licensee shall maintain accurate books and records in sufficient detail to enable the payments due hereunder to be determined. Such records shall be available on request by Columbia for inspection, during normal business hours, by Columbia's independent certified public accountant for three years after the calendar year to which they pertain, for purposes of verifying the accuracy of the reports and payments made by Licensee.

##### 5. Term of Agreement.

(a) This Agreement shall be effective as of the date first set forth above and shall continue in full force and effect, unless earlier terminated as herein provided, until the expiration of the last to expire of the Licensed Patent Rights.

(b) This Agreement and the licenses granted under it may be terminated by Columbia (i) upon 30 days' written notice to Licensee for Licensee's material breach of this Agreement if Licensee has failed to cure its breach within 30 days after written notice thereof given by Columbia or (ii) if Licensee commits any act of bankruptcy, become insolvent, files a petition under any bankruptcy or insolvency act or has any such petition filed against it because of the happening of such act or event. Without limiting the generality of the foregoing, Licensee shall be in material breach of this Agreement if it fails to make all reports or pay all fees and royalties when due.

(c) Licensee may terminate this Agreement at any time upon twelve months' written notice to Columbia.

(d) Upon any termination of this Agreement for any



reason other than Licensee's failure to cure a material breach of this Agreement, Licensee shall have the right, for one year or such longer period as the parties may reasonably agree, to dispose of Licensed Products or substantially completed Licensed Products then on hand, and to complete orders for Licensed Products then on hand, and royalties shall be paid to Columbia with respect to such Licensed Products as though this Agreement had not terminated.

(e) Termination of this Agreement shall not terminate Licensee's obligations to pay fees and royalties that shall have accrued hereunder or Licensee's obligations under Sections 4, 7 and 8 of this Agreement.

6. Warranty. Nothing in this Agreement shall be construed as a warranty or representation by Columbia as to the validity of any Licensed Patent Rights. Nothing in this Agreement shall be construed as a warranty or representation by Columbia that anything made, used, sold or otherwise disposed of under any license granted under this Agreement is, or will be, free from infringement of domestic or foreign patents of third parties.

7. Prohibition Against Use of Name. Neither Licensee nor any of its Affiliates will use the name, insignia or symbols of Columbia, its faculties or departments, or any variation or combination thereof, or of the name of any trustee, faculty member, other employee or student of Columbia for any purpose whatsoever without Columbia's prior written consent.

8. Indemnity. Licensee will indemnify and hold Columbia harmless against all actions, suits, claims, demands, or prosecutions that may be brought or instituted against Columbia based on or arising out of this Agreement, including, without limitation, the following:

(a) the manufacture, packaging, use or sale of Licensed products by Licensee, any Affiliate or their transferees;

(b) any representation made or warranty given by Licensee or any Affiliate with respect to any Licensed Product; and

(c) the use by Licensee or any Affiliate of any process under Licensed Patent Rights.

9. Notices. Any notice, report, payment or statement required or permitted under this Agreement shall be sufficient if sent by certified mail (return receipt requested), postage prepaid,

if to Columbia, to:

Director  
Office of Science and  
Technology Development  
Columbia University  
411 Low Memorial Library  
New York, New York 10027

copy to:

General Counsel  
Columbia University  
110 Low Memorial Library  
New York, New York 10027

if to Licensee, to:

Amgen, Inc.  
1900 Oak Terrace Lane  
Thousand Oaks, California 91320  
Attention: General Counsel

or to such other address as a party may specify by notice hereunder.

10. Miscellaneous. This Agreement shall be governed by New York law applicable to agreements made and to be performed in New York.

This Agreement is not assignable except by the Licensee (i) upon the sale or transfer of all or substantially all of its business or assets relating to its operations exercising the licenses granted hereunder, or (ii) to any Affiliate of Licensee, provided that, in the event of such assignment, the term Licensee as used in this Agreement shall mean such Affiliate, and provided further the original Licensee shall remain liable for the performance of such Affiliate.



This Agreement may be amended only by an instrument in writing duly executed on behalf of the parties.

IN WITNESS WHEREOF, Columbia and Licensee have caused this Agreement to be executed by their duly authorized representatives as of the date first set forth above.

THE TRUSTEES OF COLUMBIA UNIVERSITY  
IN THE CITY OF NEW YORK

By Jack M. Gronowitz  
Name: Jack M. Gronowitz  
Title: Director, Office of Science & Technology Development

AMGEN, INC.

By Lowell E. Seaks  
Name: Lowell E. Seaks  
Title: CFO

Office of the Assistant  
for Health  
Washington DC 20501

FEB 24 1981

Office of the  
General Counsel  
Columbia University

MAR 13 1981

RECEIVED

Mr. Paul A. Marks  
Vice President for Health Sciences  
The Trustees of Columbia University  
New York, NY 10027

Dear Mr. Marks:

Reference is made to an invention entitled "Processes for Inserting DNA Into Eucaryotic Cells and for Producing Proteinaceous Materials," which was developed by Richard Axel, Michael H. Wigler, and Saul J. Silverstein with support from National Institutes of Health research grants Nos. CA-23767 and CA-16346. Reference is also made to the petition of April 4, 1980 requesting that Columbia University (sometimes hereinafter referred to as the "University") be permitted to retain and administer the principal rights in this invention. We understand that Patent Application Serial No. 124,513 was filed February 23, 1980 on this invention.

In considering the request for a determination under Section 8.2(b) of the Department of Health and Human Services (HHS) regulations, the case has been evaluated to determine whether it is consistent with 41 C.F.R. 1-9.109-6 of the Federal Procurement Regulations, with Section 8.1(a) of the HHS regulations (45 C.F.R., Parts 6 and 8), more specifically with Section 8.2(b), and with the intent of the Presidents' Statements and Memoranda on Government Patent Policy (36 FR 16387, August 26, 1971, and 28 FR 10943, October 12, 1963). Consideration has also been given to whether the invention will be more adequately and quickly developed for widest use if it is assigned to Columbia University for development and administration.

Your petition for title to the invention has been granted, but your request for authority to grant an exclusive license without further review is hereby denied. In addition, your request that the nonexclusive, irrevocable, royalty-free license for the government apply only to the United States Government, except in those cases where state and local governments are acting as contractors to the United States Government, or require the invention to fulfill some Federally imposed requirement, is denied. Also, your request that whether or not an applicant for a nonexclusive license

APPENDIX A

after a period of exclusivity to another licensee expires is "qualified" be determined by joint agreement of Columbia and the Department of Health and Human Services, is denied. Columbia University may make this determination without consultation with this Department.

It will be necessary for Columbia University to submit any potential exclusive license to us for review and approval, with a justification showing the need for exclusive licensing, and the steps taken by the University to attempt to license on a nonexclusive basis.

Consistent with the regulations cited supra, it is my determination that:

1. The public interest will be best served by the expeditious development of the invention described in the United States patent application Serial No. 124,513 (hereinafter sometimes referred to as "the patent application").

Review indicates that development is necessary to advance the invention to the point of practical application and meet Food and Drug Administration approval. Such development shall include establishing and equipping an appropriate laboratory; identifying and cloning eucaryotic cells; preparing biologically significant materials using the process of the invention; and preparing, isolating, and characterizing biologically significant materials produced using the process of the invention. Clinical studies will have to be done on animals and humans to test the purity of material produced by the process. The process will have to be scaled up for producing material to commercially useful quantities. Data will have to be compiled; personnel educated; seminars conducted; publicity arranged for; packaging developed; and production initiated.

2. To encourage the above development, all right, title and interest in the invention is hereby left to the University for development and administration, subject to the following terms and conditions:

- (a) The inventors, Richard Axel, Michael R. Wigler, and Saul J. Silverstein shall assign all of their rights in the invention, including their rights in the patent application, to the University. The assignment under the patent application shall be recorded by the University in the United States Patent and Trademark Office, and copies thereof shall be furnished to this office.

- (b) The University shall not assign its U.S. patent rights in the invention to parties other than the United States Government, except that it may assign such rights in the invention to a patent management organization provided that the patent administration agreement between such organization and the University is approved by the HHS. Any reference in this determination to

the University shall also include such patent management organization when applicable and any assignment to such an organization shall be subject to all the terms and conditions of this determination.

(c). The determination of whether or not patent application shall be filed in foreign countries is left to the discretion of the University. Foreign patent rights may be licensed or assigned by the University to any party of its choice. However, any exclusive license or assignment of foreign patent rights to such party shall include a provision for royalty payments to the University based on foreign sales related to such license or assignment, and, provided that such party has a license or right to market in the United States, a provision for nonexclusive licensing in the country covered by the licensed or assigned rights on the basis of not having made the invention available in the United States within a reasonable time after marketing abroad.

In the event that such party has a license or right to market in the United States, such party shall agree to grant nonexclusive licenses or sublicenses for marketing rights in the invention outside the United States, as directed by the United States Government.

(1) if that party is marketing a product embodying the invention outside the United States for at least 2 years and

(a) such product is not then being marketed in the United States, or

(b) if required, Food and Drug Administration approval for marketing in the United States is not being actively pursued, or

(2) if that party is marketing a product embodying the invention outside the United States for at least 2 years from the date the product has Food and Drug Administration approval for marketing in the United States, and such product is not then being marketed in the United States.

(d) The University shall grant to the Government of the United States (including any agency thereof, State, or domestic municipal government) a nonexclusive, irrevocable, royalty-free license for governmental purposes, and on behalf of any foreign government pursuant to any existing or future treaty or agreement with the

United States under each United States or foreign patent application filed. The form of license to be granted under each patent application is enclosed.

(e) The University shall provide written annual reports to the HHS commencing 1 year from the date of this Agreement regarding the development and commercial use that is being made and is intended to be made of the invention, including the amounts and source of money expended in such development and such other data and information as the HHS may specify. After the first commercial sale of any product embodying the invention, such report shall specify the date of the first commercial sale and shall include information relating to gross sales by licensees, and gross royalties received by the University.

(f) In regard to the U.S. patent application, the University agrees that if it or its licensee has not taken effective steps within 3 years after a patent issues on the invention to bring the invention to the point of practical application, or has not made the invention available for licensing royalty-free or on terms that are reasonable in the circumstances, or cannot show cause why it should retain all right, title, and interest for a further period of time, the HHS shall have the right to require (1) assignment of the invention and the U.S. patent to the United States; (2) cancellation of any outstanding exclusive licenses; and/or (3) the granting of licenses to an applicant on a non-exclusive, royalty-free basis or on terms that are reasonable in the circumstances.

(g) In regard to the United States patent application, the HHS reserves the right to license or to require the granting of a nonexclusive or exclusive license to a responsible applicant or applicants to practice the invention on terms that are reasonable in the circumstances, if the University and/or any of its licensees fail to comply with any of the provisions of this determination, or if the HHS determines that the public health, safety, or welfare requires the issuance of such licenses, or that the public interest would otherwise suffer unless such licenses were granted.

The University and its licensee shall be given written notice of any proposed determination pursuant to the provisions of this paragraph not less than thirty (30) days prior to the effective date of such determination and, if requested, shall be granted a hearing before the determination is put into effect.

(h) The University shall use all reasonable effort to bring the invention to the commercial market through licensing on a non-exclusive, royalty-free or reasonable royalty basis. However,

exclusive licenses may be granted after reasonable efforts have been made to license on a nonexclusive basis, or where the University has determined that an exclusive license is necessary as an incentive for development of the invention, or where market conditions are such as to require exclusive licensing.

(i) Any exclusive license granted by the University under the U.S. patent application to a qualified manufacturer for research, development, and marketing shall be for a limited period of time, and in no event shall the period be longer than five (5) years from the date of the first commercial sale in the United States of products embodying said invention, or ten (10) years from the date of the exclusive license, whichever occurs first, provided that the licensee shall use all reasonable effort to effect introduction into the commercial market as soon as practicable, consistent with sound and reasonable business practices and judgment.

Any extension of the maximum five (5)-year period of exclusivity shall be subject to the approval of the NCI. Any request for such an extension shall be considered on its merits upon written request and justification, it being understood that, upon expiration of the period of exclusivity or any extension thereof, any license thereafter shall be granted to all competent and properly qualified applicants either royalty-free or at a uniform rate to all licensees, and not in excess of the royalty rate of the previously granted exclusive license.

Unless otherwise provided in this determination, nothing herein shall be construed as a requirement that the University obtain the agreement from any of its licensees to license its improvement inventions or technical data to subsequent licensees.

(j) Any license granted by the University under the U.S. patent application shall include adequate safeguards against unreasonable royalties and regressive practices. Royalties shall not in any event be in excess of normal trade practice. Such license shall also provide that all sales to the U.S. Government shall be royalty-free.

Should the subject matter of the invention be of sufficient interest to the National Cancer Institute of the National Institutes of Health that it decides to pursue the material further and to sponsor clinical studies, such license shall also contain a provision that the licensee supply to the National Cancer Institute any material needed for such preclinical and clinical studies at no cost to the Government, subject to negotiation in special circumstances.



(k) If permitted by its patent policies, and the terms of the grant or award under which the invention was made, the University may share royalties received with the inventors provided that the University shall not pay the inventors more than (1) fifty percent (50%) of the first \$3,000 gross royalty paid under any license granted under (h) or (i) above; (2) twenty-five percent (25%) of the gross royalty income between \$3,000 and \$13,000; and (3) fifteen percent (15%) of the gross royalty in excess of \$13,000. The balance of the royalty income, after payment of expenses incident to the administration of the invention, shall be utilized for the support of educational and research pursuits.

(l) All licenses issued by the University shall be subject to the conditions of this determination, and shall specifically incorporate by reference all applicable provisions contained herein. The University shall promptly furnish copies of any license agreements entered into by it to the HHS.

(m) The University shall upon request grant a power of attorney authorizing the HHS to inspect and make copies of any documents in the United States Patent and Trademark Office pertaining to the prosecution of the U.S. patent application.

(n) The University shall not abandon the patent application without first offering to transfer all rights in and to such application to the United States Government as represented by the Secretary, HHS not less than forty-five (45) days prior to the date a reply to a Patent and Trademark Office action is due. If the Government does not request assignment within thirty (30) days of receipt of this offer, the University may permit the application to go abandoned.

(o) Any United States patent application filed by the grantee institution shall include the following statement in the first paragraph of the specification following the abstract:

"The invention described herein was made in the course of work under a grant or award from the Department of Health and Human Services."  
If the application does not now contain this statement, please request the Patent and Trademark Office to amend the application, and furnish this office with a copy of your request.

If the foregoing determination is acceptable to Columbia University, we request that such acceptance be indicated in the space provided below, and that a signed copy be returned to the Patent Branch, Office of the General Counsel, c/o National Institutes of Health, Room 5A03, Westwood building, Bethesda, Maryland 20205. This determination will become

effective upon receipt of the signed copy. Executed copies of the appropriate assignments and licenses required by this determination should be submitted to the Patent Branch as soon as possible.

Sincerely yours,

/s/ Charles Miller

Assistant Secretary for Health

Accepted: COLUMBIA UNIVERSITY

By: Robert I. Levy

Type Name: Dr. Robert I. Levy

Title: Vice President for Health Science

Date: October 5, 1983

Enclosure

cc: Dr. Axel  
Dr. Wigler  
Dr. Silverstein.